North Carolina Department of Health and Human Services
Division of Public Health

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Date: 11 APR 2013
To: NC Medical Providers
From: Dr. Megan Davies, State Epidemiologist MDavies, MD
Subject: Diagnosis and Surveillance for Arboviral disease

Arboviral Diseases:
Neuroinvasive arboviral diseases are reportable by law in North Carolina. These conditions are transmitted by the bite of an infected mosquito and can cause symptoms ranging from fever, to altered mental status, to acute signs of central or peripheral neurologic dysfunction. La Crosse encephalitis (LAC), West Nile virus (WNV) and Eastern Equine encephalitis (EEE) are the arboviral diseases most frequently identified in North Carolina. While other states experienced dramatic increases in cases of West Nile virus during 2012, La Crosse encephalitis (LAC) remains the most commonly diagnosed arboviral disease in North Carolina. During 2012, LAC cases represented over 60% of the total arboviral disease burden. Although arboviral disease can occur across the state, cumulative data from 2003 through 2012 demonstrate that the greatest risk from LAC is in the mountain counties of Buncombe, Transylvania, Haywood and Jackson, which have reported over 70% of all LAC cases. [1]

Diagnosis:
Serologic testing for arboviral diseases is offered at no charge from the State Laboratory Public Health (NCSLPH). The submission form, DHHS 3445, is available at http://slph.state.nc.us/virology-serology/special-serology.asp. Early diagnosis of La Crosse Encephalitis is critical to reducing and eliminating unnecessary treatment; and also important for surveillance of the disease. Early recognition and diagnosis of La Crosse encephalitis will allow earlier discontinuation of empiric acyclovir for presumptive herpes simplex encephalitis and antibiotics for presumptive bacterial meningitis. [2] The sensitivity and rapidity of diagnosis of the MAC ELISA provide a powerful tool for the clinically relevant serodiagnosis of LAC virus infections in humans. [3] MAC ELISA testing is performed by the NCSLPH. Additionally serologic testing by the IFA methodology is available at the NCSLPH. We encourage providers to collect acute AND convalescent specimens to assist in confirmation of these cases using this methodology.

Education of patients, prevention of disease:
We encourage all providers to educate their patients about personal protective measures that can be used to minimize their risk of acquiring these conditions. The Centers for Disease Control has excellent resources on these and emerging arboviral diseases available at http://www.cdc.gov/ncidod/dvbid/arbor/index.htm as well as updated information on the Division of Public Health's Communicable Diseases website at http://epi.publichealth.nc.gov/cd/diseases/arbo.html
If you have any questions or concerns, please call Dr. Carl Williams or Jodi Reber at 919-733-3419.

References:
1.Haddow and Odoi. The Incidence Risk, clustering, and Clinical Presentation of La Crosse Virus Infections in the Eastern US, 2003-2007. PLoS ONE 4(7):e6145
2.McJunkin et. al. La Crosse Encephalitis in Children. N Engl J Med, Vol. 344, No. 11. 801-807
3.Calisher et.al. Serodiagnosis of La Crosse virus infections in humans by detection of immunoglobulin M class antibodies. J Clin Microbiol 1986;23:667-71

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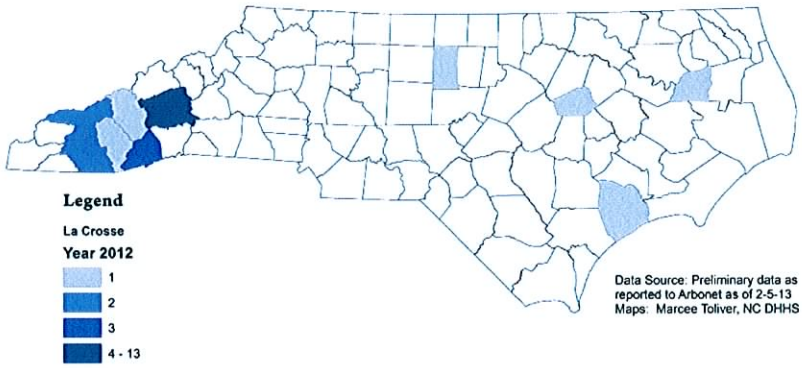
North Carolina
Confirmed and Probable
La Crosse Encephalitis Cases
2012



n = 26 cases in 10 counties

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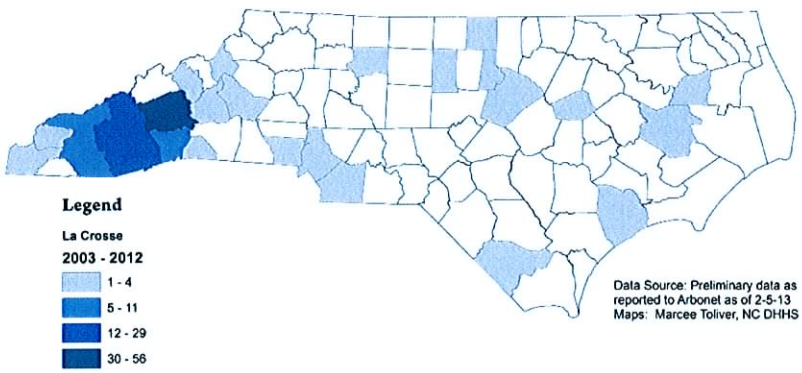
North Carolina
Confirmed and Probable
La Crosse Encephalitis Cases
2003 - 2012



n = 187 cases in 27 counties